rubber mushroom valve and is designed so as to prevent retrograde flow in the vaporizers and flowmeters. Dislodgement of the mushroom valve from the outlet check valve resulted in the occlusion of the pipeline system and prevented gas flow to the patient. The flowmeters read 2 l/min nitrous oxide and 1 l/min oxygen, which should have been sufficient for ventilation of this patient had those been the actual amounts being delivered and had a tight mask fit been obtained. In actuality the reservoir bag could hardly be distended even though a tight mask fit had been obtained and the pop-off valve was entirely closed. The probable explanation for these findings is that very little gas flow was able to pass the occlusion caused by the mushroom valve. The level of the flowmeter column floats was lowered by retrograde pressure resulting from the obstruction of flow by the displaced valve. This phenomenon is apparent in variable-orifice flowmeters such as those present in the Ohio Unitrol Model Heidbrink Gas Machine used in this case.

The mushroom valve in the machine in question has since been replaced with a new mushroom valve and has been in continuous use for more than four months with no subsequent problem.

The purpose of reporting this case is to stress the possibility of failure of anesthetic machines in spite of regular inspection and the necessity of having accessory ventilatory equipment such as Ambu bags and an extra anesthetic machine readily accessible.

JUEI-LING CHANG, M.D.
CHRISTOPHER E. LARSON, D.M.D.
RICHARD C. BEDGER, D.M.D.
ACHIEL L. BLEVAERT, M.D.
Department of Anesthesiology
Eye and Ear Hospital of Pittsburgh
University of Pittsburgh
Pittsburgh, Pennsylvania 15213

REFERENCES

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Successful Central Venous Catheter Placement from Peripheral Subcutaneous Veins in Children

To the Editor: — Central venous catheter placement can be accomplished reliably by percutaneous cannulation of the large veins of the chest via the subclavian and internal jugular veins. There are, however, risks associated with these approaches in patients with coagulopathies and in small children. In
CORRESPONDENCE

Table 1. Successes and Failures in Entering the Chests of Young Patients in Two Age Groups Using Central Venous Catheters Placed from Different Entrance Sites

<table>
<thead>
<tr>
<th>Entrance Site</th>
<th>Children of Ages</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0–5 Years</td>
<td>&gt;5 Years</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Entrance site right arm</td>
<td>Success</td>
<td>22 (67 per cent)</td>
<td>30 (67 per cent)</td>
<td>52 (67 per cent)</td>
</tr>
<tr>
<td></td>
<td>Failure</td>
<td>11</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>Entrance site left arm</td>
<td>Success</td>
<td>39 (49 per cent)</td>
<td>45 (68 per cent)</td>
<td>84 (88 per cent)</td>
</tr>
<tr>
<td></td>
<td>Failure</td>
<td>41</td>
<td>21</td>
<td>62</td>
</tr>
<tr>
<td>Entrance site right neck</td>
<td>Success</td>
<td>19 (70 per cent)</td>
<td>18 (82 per cent)</td>
<td>37 (76 per cent)</td>
</tr>
<tr>
<td></td>
<td>Failure</td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Entrance site left neck</td>
<td>Success</td>
<td>8 (67 per cent)</td>
<td>19 (95 per cent)</td>
<td>27 (79 per cent)</td>
</tr>
<tr>
<td></td>
<td>Failure</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>153</td>
<td>307</td>
<td></td>
</tr>
</tbody>
</table>

The results of this study confirm what one might expect from a knowledge of anatomy. The right neck should always be a good site, as it has the straightest route to the right atrium. Similarly, if there is any difference in arm sites, the right arm veins lead most directly to the chest. A convenient way to remember the conclusions of this study is to recall that when one is about to place a central venous catheter in a patient less than 6 years old, the operator should stand at the patient’s right side. When the patient is more than 6 years old, the operator should stand at the patient’s head.

Michael D. Klein, M.D.
Assistant Professor of Surgery and Pediatrics
University of New Mexico School of Medicine
Albuquerque, New Mexico 87131

Michael Rudd, B.S., P.A.-C.
Physician’s Assistant
Sections of Pediatric Cardiology and Thoracic Surgery
University of Michigan Medical Center
Ann Arbor, Michigan 48104

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Another Method for Distinguishing Arterial from Venous Puncture

To the Editor:—In a recent letter, Scammell described a method for determining whether blood aspirated percutaneously for arterial blood-gas analysis is actually arterial or venous. We have used a method that we feel is superior in that it allows one to determine whether the sample is arterial before it is actually aspirated into the syringe.

The method involves the use of a 25-gauge butterfly